

| | | | | | | | | |
|--------|--|--|--|--|--|--|--|--|
| U.S.N. | | | | | | | | |
|--------|--|--|--|--|--|--|--|--|

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

February / March 2023 Semester End Main Examinations

Programme: B.E.

Branch: MEDICAL ELECTRONICS ENGINEERING

Course Code: 19ML5PCTIE

Course: Therapeutic Instruments and Ethics

Semester: V

Duration: 3 hrs.

Max Marks: 100

Date: 23.02.2023

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

| | | |
|---|--|----|
| 1 | a) Define pacing. Justify the need for an artificial pacemaker. | 06 |
| | b) List the various types of pacemakers describing the functional characteristics. | 06 |
| | c) Explain the working of synchronized DC defibrillator. | 08 |

UNIT - II

| | | |
|---|--|----|
| 2 | a) With block diagram, describe the solid state diathermy machine. | 10 |
| | b) Explain various types of electro-surgery techniques commonly employed in practice. Also draw the waveforms generated by these techniques. | 10 |

UNIT - III

| | | |
|---|---|----|
| 3 | a) Draw block schematic diagram of a hemodialysis machine and examine the functions of each component incorporated in it. | 10 |
| | b) With the need for heart-lung machine, discuss the functions for the same. | 10 |

OR

| | | |
|---|---|----|
| 4 | a) Enumerate indications for the need for haemodialysis therapy. | 06 |
| | b) Discuss the six most commonly monitoring factors for the control of haemodialysis. | 06 |
| | c) Enumerate the differences between bubble, disc and membrane type oxygenators. | 08 |

UNIT - IV

| | | |
|---|--|----|
| 5 | a) Discuss the classification of ventilators based on various methods. | 10 |
| | b) Identify importance of following in respiratory assisted devices: i) Humidifier ii) Nebulizer iii) Aspirators. | 10 |

OR

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
Revealing of identification, appeal to evaluator will be treated as malpractice.

| | | | |
|---|----|--|-----------|
| 6 | a) | Discuss the functions of a Ventitator. | 10 |
| | b) | Describe the electronic Intermittent Positive Pressure Breathing (IPPB) unit with monitoring for respiratory parameters. | 10 |

UNIT - V

| | | | |
|---|----|--|-----------|
| 7 | a) | Identify the effects of ionizing radiation. | 06 |
| | b) | Summarize the effect of electrical current that occur with increasing current intensity on human body. | 08 |
| | c) | Describe the ethical issues arising from the use of biomedical instrumentation. | 06 |

B.M.S.C.E. - ODD SEM 2022-23